

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Claim 1 (currently amended): A data drive comprising:

a drive base;

a data transfer mechanism is fixedly coupled to the drive base;

a carriage assembly for receiving a cartridge containing a data storage medium; and

a carriage assembly actuator coupled to the drive base for translating the carriage assembly to expose a plurality of radial positions of the data storage medium to the data transfer mechanism.

Claim 2 (original): The data drive of claim 1, wherein the data transfer mechanism comprises a holographic data transfer mechanism.

Claim 3 (cancelled)

Claim 4 (original): The data drive of claim 1, wherein the carriage assembly comprises:

a spindle for rotating a hub on a cartridge contained in the carrier, wherein the spindle is translated with the carriage assembly as the carriage assembly is translated by the carriage assembly actuator.

Claim 5 (original): The data drive of claim 4, wherein the carriage assembly comprises

a sled base coupled to the carriage assembly actuator; and

a carrier for receiving the cartridge, the carrier being configured to move relative to the sled base.

Claim 6 (original): The data drive of claim 5, further comprising:

a carrier loading assembly for translating the carrier from an unload position to a load position, wherein the unload position positions the carrier to receive the cartridge from a load port, and the load position positions the carrier such that the hub on a cartridge within the carrier is mated with the spindle.

Claim 7 (original): The data drive of claim 6, wherein the carrier loading assembly is fixedly coupled to the drive base.

Claim 8 (original): The data drive of claim 6, wherein the carrier loading assembly translates the carrier from the unload position to the load position by:

first, translating the carrier in a horizontal direction such that the hub on a cartridge within the carrier is positioned coaxial with the spindle; and

second, translating the carrier in a vertical direction to the load position.

Claim 9 (original): The data drive of claim 8, wherein:

the drive base further comprises a carrier guide having at least one guide slot for receiving at least one guide pin provided on the carrier; and

the carrier loading assembly further comprises at least one guide pin driving member for actuating movement of the at least one guide pin along the at least one guide slot.

Claim 10 (original): The data drive of claim 9, wherein:

the at least one guide pin driving member comprises a plate rotatable about a driving member axis;

the carrier loading assembly further comprises a load plate movable in a lateral direction from an unload position to a load position, the load plate being configured to cause the at least one guide pin driving member to rotate about the driving member axis when the load plate moves from the unload position to the load position.

Claim 11 (original): The data drive of claim 10, further comprising:

a drive door configured to cover the load port in a closed position and to expose the load port in an open position;

wherein the load plate is further configured to move the drive door into the closed position as the load plate moves from the unload position to the load position.

Claim 12 (original): The data drive of claim 10, further comprising:

a lock cam for retaining at least one guide pin to prevent the carrier from moving out of the load position.

Claim 13 (original): The data drive of claim 5, wherein the carrier further comprises a shutter opener, said shutter opener comprising a lock release for releasing a lock on the cartridge.

Claim 14 (original): The data drive of claim 13, wherein the shutter opener comprises:

a shutter body member rotatable about a shutter opener axis; and

a shutter opener boss provided on the shutter body member distal from the shutter opener axis.

Claim 15 (currently amended): The data drive of claim 14, wherein the shutter opener boss comprises:

a shutter opening portion; and

a shutter opener boss lock release portion configured to contact a lock on the cartridge prior to the shutter opening portion contacting a shutter on the cartridge.

Claim 16 (currently amended): The data drive of claim 15, wherein:

the shutter opener boss is offset from the shutter opener axis such that as a cartridge is inserted into the carrier, the shutter body member opener rotates about the shutter opener axis, causing the shutter opener boss to travel laterally across a front edge of the cartridge.

Claim 17 (original): The data drive of claim 15, wherein:

the shutter opening portion comprises a first portion of the shutter opener boss having a first width; and

the lock release portion comprises a second portion of the shutter opener boss having a second width larger than the first width.

Claim 18 (original): The data drive of claim 1, wherein the carriage assembly further comprises a shutter opener.

Claim 19 (original): The data drive of claim 18, wherein the shutter opener is configured to begin opening a shutter on a cartridge after the cartridge has been received a predetermined distance into the carriage assembly

Claim 20 (original): The data drive of claim 19, wherein the shutter opener is configured to begin opening a shutter on a cartridge after the shutter has been received in the carriage assembly.

Claims 21 – 40 (cancelled)

Claim 41 (currently amended): A data drive comprising:

a data transfer mechanism;

a carriage assembly for receiving a cartridge containing a data storage medium, said carriage assembly [[and]] having a movable shutter [[having]] with a shutter lock; and

a shutter opener comprising a lock release for releasing a lock on the cartridge, wherein the shutter opener comprises:

a shutter body member rotatable about a shutter opener axis; and

a shutter opener boss provided on the shutter body member distal from the shutter opener axis, and wherein the shutter opener boss comprises a shutter opening portion and a lock release portion configured to contact a lock on the cartridge prior to the shutter opening portion contacting a shutter on the cartridge.

Claim 42 (original): The data drive of claim 41, wherein the data transfer mechanism comprises a holographic data transfer mechanism.

Claims 43-44 (cancelled)

Claim 45 (currently amended): The data drive of claim [[44]] 41, wherein:

the shutter opener boss is offset from the shutter opener axis such that as a cartridge is inserted into the carrier, the shutter opener rotates about the shutter opener axis, causing the shutter opener boss to travel laterally across a front edge of the cartridge.

Claim 46 (currently amended): The data drive of claim [[44]] 41, wherein:
the shutter opening portion comprises a first portion of the shutter opener
boss having a first width; and

the lock release portion comprises a second portion of the shutter opener boss
having a second width larger than the first width.

Claim 47 (original): The data drive of claim 41, wherein the shutter opener is
configured to begin opening a shutter on a cartridge after the cartridge has been
received a predetermined distance into the carriage assembly

Claim 48 (original): The data drive of claim 47, wherein the shutter opener is
configured to begin opening a shutter on a cartridge after the shutter has been
received in the carriage assembly.

Claim 49 (original): The data drive of claim 47, wherein the shutter opener is
configured to begin opening a shutter on a cartridge after at least 50% of the
cartridge has been received in the carriage assembly.

Claims 50 – 54 (cancelled)

Claim 55 (new): A data drive comprising:

a drive base;
a data transfer mechanism coupled to the drive base;
a carriage assembly for receiving a cartridge containing a data storage
medium; and

a carriage assembly actuator coupled to the drive base for translating the
carriage assembly to expose a plurality of radial positions of the data storage medium
to the data transfer mechanism, wherein the carriage assembly comprises a spindle

for rotating a hub on a cartridge contained in the carrier, and wherein the spindle is translated with the carriage assembly as the carriage assembly is translated by the carriage assembly actuator.

Claim 56 (new): The data drive of claim 55, wherein the data transfer mechanism comprises a holographic data transfer mechanism.

Claim 57 (new): The data drive of claim 55, wherein the data transfer mechanism is fixedly coupled to the drive base.

Claim 58 (new): The data drive of claim 57, wherein the carriage assembly comprises

a sled base coupled to the carriage assembly actuator; and

a carrier for receiving the cartridge, the carrier being configured to move relative to the sled base.

Claim 59 (new): The data drive of claim 58, further comprising:

a carrier loading assembly for translating the carrier from an unload position to a load position, wherein the unload position positions the carrier to receive the cartridge from a load port, and the load position positions the carrier such that the hub on a cartridge within the carrier is mated with the spindle.

Claim 60 (new): The data drive of claim 59, wherein the carrier loading assembly is fixedly coupled to the drive base.

Claim 61 (new): The data drive of claim 59, wherein the carrier loading assembly translates the carrier from the unload position to the load position by:

first, translating the carrier in a horizontal direction such that the hub on a cartridge within the carrier is positioned coaxial with the spindle; and

second, translating the carrier in a vertical direction to the load position.

Claim 62 (new): The data drive of claim 61, wherein:

the drive base further comprises a carrier guide having at least one guide slot for receiving at least one guide pin provided on the carrier; and

the carrier loading assembly further comprises at least one guide pin driving member for actuating movement of the at least one guide pin along the at least one guide slot.

Claim 63 (new): The data drive of claim 62, wherein:

the at least one guide pin driving member comprises a plate rotatable about a driving member axis;

the carrier loading assembly further comprises a load plate movable in a lateral direction from an unload position to a load position, the load plate being configured to cause the at least one guide pin driving member to rotate about the driving member axis when the load plate moves from the unload position to the load position.

Claim 64 (new): The data drive of claim 63, further comprising:

a drive door configured to cover the load port in a closed position and to expose the load port in an open position;

wherein the load plate is further configured to move the drive door into the closed position as the load plate moves from the unload position to the load position.

Claim 65 (new): The data drive of claim 63, further comprising:

a lock cam for retaining at least one guide pin to prevent the carrier from moving out of the load position.

Claim 66 (new): The data drive of claim 58, wherein the carrier further comprises a shutter opener, said shutter opener comprising a lock release for releasing a lock on the cartridge.

Claim 67 (new): The data drive of claim 66, wherein the shutter opener comprises:

a shutter body member rotatable about a shutter opener axis; and

a shutter opener boss provided on the shutter body member distal from the shutter opener axis.

Claim 68 (new): The data drive of claim 67, wherein the shutter opener boss comprises:

a shutter opening portion; and

a shutter opener boss lock release portion configured to contact a lock on the cartridge prior to the shutter opening portion contacting a shutter on the cartridge.

Claim 69 (new): The data drive of claim 68, wherein:

the shutter opener boss is offset from the shutter opener axis such that as a cartridge is inserted into the carrier, the shutter body member rotates about the shutter opener axis, causing the shutter opener boss to travel laterally across a front edge of the cartridge.

Claim 70 (new): The data drive of claim 68, wherein:

the shutter opening portion comprises a first portion of the shutter opener boss having a first width; and

the lock release portion comprises a second portion of the shutter opener boss having a second width larger than the first width.

Claim 71 (new): The data drive of claim 55, wherein the carriage assembly further comprises a shutter opener.

Claim 72 (new): The data drive of claim 71, wherein the shutter opener is configured to begin opening a shutter on a cartridge after the cartridge has been received a predetermined distance into the carriage assembly

Claim 73 (new): The data drive of claim 72, wherein the shutter opener is configured to begin opening a shutter on a cartridge after the shutter has been received in the carriage assembly.